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One is curious to know why such an obsolete work was deemed worthy of reprinting at this time and after the lapse of more than sixty years. Cyrus Elder, who writes the introduction, is evidently a layman in matters anatomic and psychologic and therefore doughtily attacks the doctor of medicine and the psychologist as knowing nothing of the mind in the one case and nothing of the brain in the other. Mr. Elder is either innocent of knowledge of, or he ignores the results of, patient researches conducted along clinico-pathologic, experimental, physiologic and developmental lines which have furnished us with a good working map of the somesthetic and sense-areas and, inferentially, of the association-areas of the cerebral cortex. But even such a topographic map, delineating areas called *motor*, *visual*, *auditory* and so on, is not to be considered as mathematically accurate or sharply defined as the areas of a state, county or township. The areas rather shade off in a diffuse manner and really show only the maximum concentration of those cortical parts which most distinctly appertain to the function alleged for them. Also, while less than one third of the cortical expanse is directly concerned with receptive and emissive functions, the remainder is presumed to be devoted to the elaboration of the higher mental activities manifested in abstract thought, ideation, reasoning and language. Further than this, present-day cerebral localization of function in the cortex does not pretend to go. Although an aggregation of psychic areas and therefore the seat of the will, the neuron connections of any portion of the cortex with other cortical parts and of these with other centers in the brain, are so intricate, complex and interdependent that all search for isolated "centers" of moral qualities, qualities of consciousness, has thus far been quite futile. Of the neurone, the developmental, structural and functional unit of the nerve-system, and of the grouping and chaining of neurones as revealed by modern methods of investigation, Gall and Spurzheim knew nothing, of course; apparently the editor of the volume before us is no better off.

With the increase of the intellectual faculties in the course of evolution, the brain has developed in bulk and complexity and with it the skull has undergone expansion and modification of form. Some of the intellectual faculties have found somatic expression in the relative expanse of certain cortical areas and these in turn have exerted some influence upon the configuration of the skull, but not to the degree nor of the same kind of protuberances that Gall and Spurzheim's phrenology proposed; protuberances, by the way, which in certain instances overlie normally variant air-sinuses, blood-sinuses, sutural thickenings or muscle.

Unless it be that a certain historic interest attaches to a work which for a time attracted attention and even afforded disciples of its doctrines a means of livelihood, and which may be regarded as a stepping-stone toward modern cerebral physiology, the reprinting of Spurzheim's work must be regarded as a somewhat otiose undertaking.

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#### SCIENTIFIC JOURNALS AND ARTICLES

*The Journal of Biological Chemistry*, Vol. VI., No. 3, June, 1909, contains "The Mode of Oxidation in the Organism of Phenyl Derivatives of the Fatty Acids": Part IV., Further Studies on the Fate of Phenylpropionic Acid and Some of its Derivatives; Part V., Studies on the Fate of Phenylvaleric Acid and its Derivatives; Part VI., The Fate of Phenylalanine, Phenyl- $\beta$ -alanine, Phenylserine, Phenylglyceric Acids and Phenylacetaldehyde, by H. D. Dakin. These papers are a continuation of the author's earlier work on the mode of catabolism of fatty acids. They show the stages through which the substances studied pass in their transformation in the body and lead to the view that the catabolism of a fatty acid group is effected by the removal of two carbon groups at a time. This process is termed by the author "successive  $\beta$ -oxidation" and is believed to be a general biochemical reaction. "The Nuclein Ferments of Yeast," by M. N.

Straughn and Walter Jones. Yeast contains guanase but not adenase or xanthoöxidase. "Further Studies on the Use of the Fermentation Tube in Intestinal Bacteriology," by A. I. Kendall. Explanations of commonly observed discrepancies in the study of intestinal flora by means of the fermentation tube. "The Metabolism of Man during the Work of Typewriting," by Thorne M. Carpenter and Francis G. Benedict. Estimations of oxygen consumption, carbon dioxide exhalation and heat production show that the energy transformation during the work of typewriting is less than that occurring in ordinary walking.

#### SPECIAL ARTICLES

##### A SUCCESSFUL OVARIAN TRANSPLANTATION IN THE GUINEA-PIG, AND ITS BEARING ON PROBLEMS OF GENETICS<sup>1</sup>

TRANSPLANTATION of the ovary from one animal to another has often been attempted, and with varying degrees of success. The object has usually been to observe the effects of the transplantation upon the animal into which the foreign ovary was introduced. Recently, however, the experiment has been repeated by students of genetics, to discover, if possible, what the effect would be upon the germ-cells, of a transfer from their normal environment to the body of a different individual. The most noteworthy results thus far<sup>2</sup> reported are those of Guthrie on hens, and of Magnus<sup>3</sup> on rabbits. Each apparently working without knowledge of the other's work has obtained what seems to be a modification of the coloration of the offspring, due to influence exerted by the foster-mother upon the germ-cells liberated within her body from the introduced ovary. But in the work of neither of these experimenters does the nature of the result obtained preclude the possibility that the ova liberated may have come from regenerated ovarian tissue

of the mother herself rather than from introduced ovarian tissue. The theoretical importance of this point led us about a year ago to plan experiments which should not be open to the objection which we have stated. We therefore undertook the transfer of ovarian tissue from a Mendelian dominant to a Mendelian recessive individual. For if in such a case germ-cells were liberated which bore the dominant character, we should know that they could have come only from the introduced tissue, since recessive individuals are themselves incapable of liberating dominant germ-cells.

We are now able to report partial success. The ovaries were removed from an albino guinea-pig about five months old, and in their stead were introduced the ovaries of a black guinea-pig about one month old. The albino upon which the operation had been performed was then placed with an albino male guinea-pig, and six months later bore two black-pigmented young.

In all recorded observations upon albino guinea-pigs, of which we have ourselves made many hundred, albinos when mated with each other produce only albino young. Accordingly there seems no room for doubt that in the case described the black-pigmented young derived their color, not from the albino which bore them, but from the month-old black animal which furnished the undeveloped ovaries, for transplantation into the albino. As regards the important question whether, in such an experiment as this, the germ-cells are modified in character by the changed environment within which they are made to grow, our results are at variance with those of Guthrie and Magnus. *We can detect no modification.* The young are such as might have been produced by the black guinea-pig herself, had she been allowed to grow to maturity and been mated with the albino male used in the experiment.

We have now under observation about seventy-five other guinea-pigs, as well as a number of rabbits, upon which similar operations have been performed. From some of these we hope to obtain further results.

<sup>1</sup> Contributions from the Laboratory of Genetics, Bussey Institution, Harvard University, No. 1.

<sup>2</sup> *Journal of Experimental Zoology*, Vol. 5, p. 563, June, 1908.

<sup>3</sup> *Norsk magazin for lægevidenskaben*, No. 9, 1907.